

Original Paper

Research on Performance Management of PPP Project in China

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Abstract

PPP (Public-Private Partnership) project performance management refers to the project management activities such as performance targets and indicators management, performance monitoring, performance evaluation and result application in the whole life cycle of PPP project. At present, under the background that most PPP projects have started, constructed and operated one after another, strengthening the performance management of PPP projects has become the focus of attention of all parties. This paper sorts out the general situation of PPP project performance evaluation management based on questionnaires and expert interviews, discusses and analyzes the key points of PPP project overall performance, success factors, problems in project implementation, clearing out of library, application of performance evaluation results, and future development trend, and puts forward opinions and suggestions to guide all parties to standardize the implementation of PPP projects in the next step.

Keywords

PPP project, performance management, performance evaluation of PPP project

1. Introduction

PPP project performance management refers to project management activities such as performance targets and indicators management, performance monitoring, performance evaluation and result application in the whole life cycle of PPP project (Public—Private Partnership, that is, cooperation project between government and social capital).

According to the Ministry of Finance's National PPP Project Integrated Information Platform Management Database, as of the first half of 2020, there were 9,062 PPP projects in the database with an investment of 14.8 trillion yuan (Note 1). A total of 6,626 projects were signed and landed, with an investment of 10.4 trillion yuan with a landing rate of 68.5%. And a total of 3,964 construction projects

have been started, with an investment of 5.9 trillion yuan and an operating rate of 59.8% (Note 2). However, in recent years, there are 5,678 projects with a total investment of 5.59 trillion yuan, which have been gradually cleared out due to irregular construction and operation (Note 3). Now, there is an urgent requirements for the whole cycle performance management of PPP projects to improve the quality of warehousing projects, raise the landing rate and operating rate of PPP projects and prevent the number of withdrawal projects from further increasing.

This paper sorts out the general situation of PPP project performance evaluation management based on questionnaires and expert interviews, discusses and analyzes the key points of PPP project overall performance, success factors, problems in project implementation, clearing out of library, application of performance evaluation results, and future development trend, and puts forward opinions and suggestions to guide all parties to standardize the implementation of PPP projects in the next step.

2. Overview of PPP Project Performance Management

PPP project is a mode of providing government public goods and quasi-public goods. Different from the traditional government procurement modes, PPP projects are generally designed, built, operated and maintained by social capitalist, who can get reasonable returns through “user payments”, “feasibility gap subsidies” and “government payments”. Also, the government can take measures like price and quality supervision to achieve a “triple win” situation in terms of government, social capital and the public (Xie, 2016).

At present, the accessible fields of PPP projects cover 19 aspects including energy, transportation, water conservancy and environmental protection. The specific operating modes include Operation Maintenance (O&M), Concession, Management Contracts (MC), Lease-Operate-Transfer (LOT), Build-Operate-Transfer (BOT), Transfer-Operate-Transfer (TOT), Rehabilitate-Operate-Transfer (ROT), Buy-Build-Operate (BBO), etc.

The earliest PPP projects in China can be traced back to Shanghai Pudong Tap Water Equity Transfer Project in 2002 and Shanghai Laogang Phase IV Waste Sanitary Landfill Project in 2003. After a long period of preparations and rigorous demonstrations, the early projects are now in the normal operation stage. In 2014, in order to simplify administration and decentralize power, the government began to reduce government investment and encourage private investment. After that, the PPP project mode was vigorously promoted. In 2016, the government started to pay attention to effective investment and improve PPP warehousing conditions. In 2017, the policy orientation was to expand effective investment actively and deepen cooperation between government and social capital. However, some problems had been exposed in PPP field. For example, support policies in some areas such as land lag behind, government defaults had occurred in some areas, and investment in PPP projects had started to cool down. In 2019, the government continued to rationally expand effective investment, appropriately reduce the capital adequacy ratio of infrastructure investment projects, and began to promote and standardize PPP projects in an orderly manner.

In March, 2020, the Ministry of Finance issued a policy document named Operational Guidelines for Performance Management of Government-Social Capital Cooperation (PPP) Projects, which provided clear basis and requirements for performance targets and indicators management, performance monitoring, performance evaluation and application of results in the whole life cycle of PPP projects. Under the background that most PPP projects have started, constructed and operated one after another, strengthening the performance management of PPP projects has become the focus of attention of all parties (Zhang, X. Y. & Zhang, X. Q., 2020).

3. Literature Review

3.1 Research on Similar Topics of PPP Project Performance Evaluation in China

In March 2020, the Ministry of Finance issued the Operational Guidelines for Performance Management of Public-Private Partnership (PPP) Projects, which established the basic framework of PPP project performance management. This guideline has made detailed regulations on PPP project performance objectives, performance monitoring, performance evaluation and organizational guarantee, etc. Among them, the work plan, evaluation procedure, content format of performance evaluation report, evaluation common index framework of PPP project during construction period and operation period, application of evaluation results and so on are emphasized. The release of the Guidelines establishes the basic framework of PPP project performance management with Chinese characteristics, which is not only the “construction drawing” and “operation method” at the operational level, but also the “master design blueprint” at the top-level design level, which solves the fragmentation of PPP performance management and the lack of basic institutional norms, and forms the basic framework of PPP project performance management with Chinese characteristics: PPP performance management takes value for money as the core; Full coverage of PPP performance management objects; The main body of PPP performance management is omni-directional (Cao, 2020).

With regard to the performance evaluation objects of PPP projects, Xie Lijuan mentioned in her research paper on performance evaluation of quasi-operating infrastructure PPP projects that the evaluation object is the evaluation target, that is, what to evaluate, which is a specific PPP project. In this case analysis, the performance evaluation object is a county domestic sewage treatment PPP project, and its characteristics directly affect the determination of evaluation index system (Xie, 2016).

Liu Di pointed out that there are some problems in the Guidelines, such as how to “pay according to performance”, how the evaluation results are related to financial subsidies, unclear classification of PPP project performance evaluation results, and failure to describe in detail the overall basis, specific content, evaluation standards and methods of PPP project performance evaluation (Liu, 2020).

Chen Shaoqiang and Guo Qian pointed out that the uncertain risks of the Guidelines are outstanding, such as the uncertainty of performance targets management, the uncertainty of performance indicators management and the uncertainty of performance standards management (Chen & Guo, 2020).

The performance evaluation of special financial funds is also of reference significance to the performance evaluation of PPP projects. Zhang xinyu and Zhang Xiaoqing pointed out that there are some problems in the performance evaluation of special financial funds, such as arbitrariness in performance evaluation, lag in performance effect due to insufficient consideration of special financial funds, unbalanced ratio of quantitative and qualitative indicators in performance evaluation system, etc. Similar problems also exist in PPP project performance evaluation (Zhang, X. Y. & Zhang, X. Q., 2020).

Jia Kang put forward the “six links at different levels” about the performance of financial investment expenditure, which is to correctly and timely grasp the general direction of the use of financial funds under the macro form, to reasonably grasp the implementation intensity and development mechanism of fiscal policy, to do a good job of top-level design in structural optimization and so on (Jia, 2020).

3.2 Research on Similar Topics of PPP Project Performance Evaluation abroad

The World Bank Guide to PPP Contract Terms in 2017 pointed out that although PPP transactions were usually based on a complex network of legal agreements, their cores were PPP contracts. In addition, due to the complexity and precision of PPP transactions, there are many differences in the understanding of PPP and the development level of PPP mode among different countries, so it is difficult to issue a general and prescriptive guide around the world. But some suggestions can be provided for writing some common contents in PPP contracts, such as force majeure, termination rights and dispute resolution (World Bank’s Public-Private Partnerships Group. Guidance on PPP Contractual Provisions, 2017).

Wu Jishu affirmed the long history and mature experience of PPP mode in the United States and Australia in Practice and Enlightenment of Foreign Legal System Construction of PPP Mode, and pointed out that the enlightenment for China’s performance evaluation and the legislative emphasis on value-for-money evaluation, such as the use of scientific project capital asset model. This initiative have guided significance for the current situation that the Guidelines are not specific and clear. Finally, it also mentioned that the project company should actively submit monthly monitoring reports to the government, and the government should strengthen monitoring and other measures (Wu, 2020). David I. Wilson mentioned in Review of Australian PPP Governance Structure that when the corporate governance method is applied to PPP projects, the emphasis is often on the benefits it will bring, but little attention is paid to the organizational relationship, decision-making and required actions within the PPP structure (David, Wilson, & Colin, 2010). Demi Chung is studying Risk Management in Public-Private Partnership, Taking Australia’s first PPP highway with expired franchise rights, that is, Sydney M4 Expressway as an example. She emphasizes that the incomplete contract defining the risk responsibility and ownership of the contracting parties promotes the risk management process. Risk management structure creates opportunities for all parties involved in regular communication and information exchange. It enables RTA to exercise management control from a long distance, thus establishing trust relationship. The non-prescriptive nature of incomplete contracts provides flexibility

for both parties in managing uncertainty, and promotes innovative practices in solving problems which are not considered in advance, resulting in seamless ownership transfer when the contract expires (Demi & David, 2015).

In addition, in the Development of Public-Private Partnership (PPP) in the Netherlands, JoopKoppenjan and Martin de Jong said that the current PPP mode in the Netherlands was mainly contractual public-private partnership. That is, Design-Building-Financing-Maintenance-Operation contract projects (DBFMO). Used for the development, construction and operation of government buildings, roads, water conservancy and other related infrastructure by the central government, this model has some challenges, such as easy manipulation of evaluation tools, high bidding transaction costs, tense confrontation between social capital and government, and difficulty in changing roles after entering the operation period (JoopKoppenjan, Chen, & Zhang, 2016).

4. The Questionnaire Survey and Analysis

In order to understand the views of academic circles and intermediary consulting industry on PPP project performance management related issues, this study produced a questionnaire containing 15 closed questions and one open question, which was distributed to the national asset appraisal professional teachers and infrastructure investment and financing experts. Finally, 52 valid questionnaires were collected, among which 75% of the respondents had practical work experience in PPP projects, and had participated in consulting work in 12 PPP project fields such as infrastructure, municipal engineering, ecological environment and transportation. The conclusions of the questionnaire are as follows.

4.1 The Performance of PPP Projects Is Mainly Reflected in Providing Financing Channels

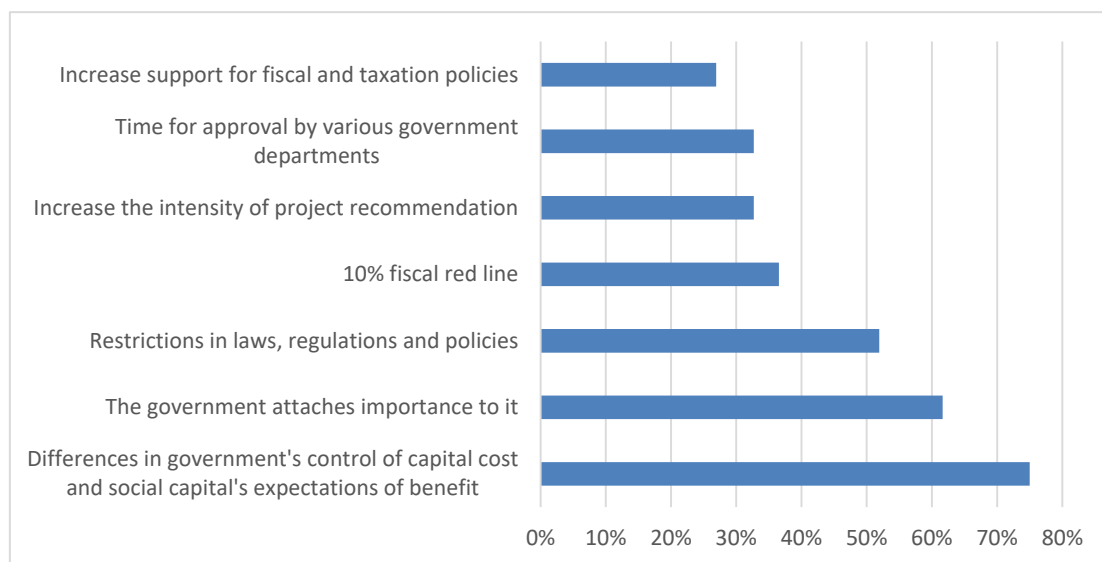
According to Table 1, respondents believe that the implementation of PPP projects has produced certain performance in effectively providing financing channels and improving the quality and efficiency of public goods and services. Comparatively speaking, the significance of PPP project is more reflected in solving the financing problem for project construction, and the role of improving the quality and efficiency of public goods and services is second.

Table 1. Satisfaction with PPP Project Performance

Options	Very satisfied	satisfaction	General	Dissatisfied	Very dissatisfied
Provide an effective financing channel	13.46%	50%	32.69%	3.85%	0%
Improve the quality and efficiency of public goods and services	13.46%	36.54%	48.08%	1.92%	0%

4.2 The Key Factors for the Success of PPP Projects Are the Elimination of Differences and the Government's Attention

On the issue of “key factors for the success of PPP projects”, 75% of the respondents think that reasonably solving “the difference between the government’s control of capital cost and the social capital’s expectation of income” is the most critical factor for the success of PPP projects. 61.54% of the respondents think that “the government’s attention” is also a key factor, and 51.92% of the respondents think that “restrictions in laws, regulations and policies” are also very important factors. See Table 2 for the respondents’ recognition of each factor.





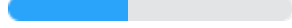
Table 2. Key Factors for Success of PPP Project

4.3 There Are Many Problems in the Implementation of PPP Projects

4.3.1 The Specific Problems Involved in All Aspects

It can be seen from Table 3 that the interviewees think that there are many problems in the process of project implementation, including “too long project life cycle leads to many uncertain factors”, “insufficient funds”, “asymmetric information”, “inaccurate evaluation of construction costs and operating costs under implementation”, “lack of supervision” and so on.

Table 3. Specific Problems in Project Implementation

Options	Proportion
Long project life cycle leads to many uncertain factors	 73.08%
The funds are not in place	 65.38%
Information asymmetry	 61.54%
Inaccurate valuation of construction cost and operation cost in implementation	 59.62%
Lack of supervision	 42.31%

4.3.2 There Are Much More Problems in the Government

88.46% of the respondents believe that there are many problems in the implementation of PPP projects, and the government (including government authorized agencies and project implementation agencies) should bear the main organizational management and supervision responsibilities; 63.46% of the respondents believe that there are problems in social capital.

4.3.3 The Outstanding Problems of the Government Are Insufficient Supervision and Complicated Approval Process

In terms of “the main problems existing in the government”, the respondents believe that the most prominent problems existing in the government are inadequate supervision on the progress and quality of project implementation, followed by complicated operation process, long approval time and low efficiency of government departments. In addition, it is difficult for the government to find a balance between capital cost control requirements and project implementation quality requirements, which also shows that the government’s PPP project management ability is insufficient.

4.3.4 The Outstanding Problems of the Social Capital Side Are Mainly Financial Risks, Insufficient Performance Ability and Financing Ability

In terms of “main problems existing in the social capital side”, 65.38% of the respondents believe that the primary problem existing in the implementation of PPP projects by the social capital side is the liquidity risk that may be caused by the long implementation period of the project. Secondly, it is insufficient performance ability, which is mainly due to the lack of comprehensive control ability and

long-term cooperation willingness of PPP projects. And the third problem is insufficient financing ability, which leads the capital cannot be put in place in full and on time. Other problems are also presented including the lack of social responsibility, the parent company's random use of funds and other illegal operations.

4.3.5 The Main Problems of the Project Company Are Lack of Independence and Difficulty in Financing

In terms of "main problems existing in project company", 65.38% of the respondents believe that the primary problem of the project company is the lack of independence compared with the funder (social capital), followed by the difficulty of loan financing, which means that most banks still do not recognize the project as a unit and take the future cash flow as the loan condition. Thirdly, the shareholding ratio of shareholders of the project company does not match their rights and obligations. Some shareholders are only financial investors, enjoying fixed income but not participating in the operation and management of the project company and related risks. Others still have problems such as insufficient effective communication with the government, etc.





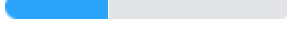

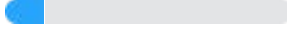
4.4 The PPP Project Retreat Rules Can Effectively Regulate the Implementation of PPP Projects

67.31% of the respondents believe that the rules of clearing and withdrawing PPP projects in documents can effectively regulate the implementation of PPP projects, such as the Notice on Regulating the Project Library Management of Government and Social Capital Cooperation (PPP) Integrated Information Platform and the Implementation Opinions of the Ministry of Finance on Promoting the Standardized Development of Government and Social Capital Cooperation.

In terms of the reasons for the retreat of PPP projects, 76.92% of the respondents believe that "the preliminary work is not in place, the performance-based payment mechanism and the preliminary demonstration research are sloppy" is the primary reason that leads to various problems in project implementation and even triggers contract termination or retreat clauses, which means the feasibility study is in the form, and the work of "two evaluations and one case" is not meticulous including the calculation is not rigorous and the progress is mechanically. 59.6% of the respondents believe that "some projects are not suitable for adopting PPP mode and do not belong to the public service field". As mentioned above, the problems in the preliminary work of the project lead to the adoption of PPP mode in some projects, which cannot effectively reduce construction and operation costs and improve supply efficiency, compared with the traditional government procurement mode. 57.6% of the respondents believe that the project which "does not meet the requirements of operational norms and operates illegally (such as BT mode)" is the reason for the retreat. Social capital focuses on construction but neglects operation, who is eager to recover investment as soon as possible, and has no intention of participating in the long-term operation of the project, resulting in some projects becoming BT mode in disguise. 46.15% of the respondents believe that the main participants of the project are not due diligence. It causes the project construction seriously lags behind and the project can not be

completed and accepted on time and put into operation, which is another main reason leading to the retreat.

Table 4. Main Reasons for the Retirement of PPP Projects

Options	Proportion
The preliminary work is not in place, and the performance-based payment mechanism and the preliminary demonstration research are carried out carelessly	 76.92%
PPP mode is not suitable for the project	 59.62%
Do not meet the requirements of operation specifications and operate illegally (such as BT mode)	 57.69%
The project lags behind, and the project participants are not due diligence	 46.15%
The government or relevant government agencies, illegal debt guarantee	 36.54%
Not entering the procurement stage has exceeded the financial capacity by 10%	 32.69%
Failure to disclose information as required	 13.46%

4.5 The Overall Evaluation of the Current Situation and Prospects of PPP Projects Is Average

In the overall evaluation of the current implementation of PPP projects, 46.15% of the respondents rated it as “fair”, slightly higher than the proportion of 38.46% who rated it as “good”. As for the application prospect of PPP mode in China in the future, the rate of “fair” is also the highest, with 44.23%, followed by the rate of “good”, with 42.31%. It can be seen that, although the overall evaluation of the present situation and prospects of PPP projects by experts and people in the industry is mostly average, they are still optimistic about the future development prospects.

5. In-depth Interviews and Analysis

On the basis of the questionnaire survey, this study invited experts from three different occupations respectively in terms of college asset appraisal teacher, China domestic consultant in PPP project consultation and government departments staff who had participated in PPP project consultation or management, to conduct further in-depth interviews.

Firstly, according to the results of the questionnaire survey, the interview outline was listed around the key issues and reasons. Secondly, experts were invited to conduct interviews in the form of online meetings. In meetings, interviewees explained the overall situation and implementation process of PPP

project. They summarized the causes of problems in PPP mode, disclosed the application of PPP project performance evaluation, and made their own judgments on the future development trend. The conclusion of the interview is summarized as follows.

5.1 The Overall Situation of the Current PPP Project

From 2014 to now, domestic PPP projects have experienced a dramatic increase, and then tended to rationality. Due to various reasons, there were not many PPP projects that had achieved the expected performance goals in all aspects during the period ranging from 2014 to 2016. Reasons are mainly manifested in the hasty preparation time, coupled with the concern about the high cost of intermediary consultation, most projects do not have the standard preparation conditions. And the necessary procedures are continuously streamlined in the process of selecting social capital and bidding, which makes the risk assessment unclear and finally makes the risk difficult to control.

At present, due to the fact that a certain number of projects have died or withdrawn from the project library, these failure cases make the local government, social capital and all parties involved gradually return to rationality, and the financial department also has more stringent requirements for pre-project demonstration.

Worldwide, PPP projects account for a low proportion of the total investment in infrastructure and public facilities, and have not become the mainstream investment and financing mode of infrastructure. The successful implementation of PPP mode depends on a series of explicit and implicit institutional backgrounds, such as clear legal systems and regulations, mature qualified investors, mature financial markets and rigorous third-party consulting institutions (David, Wilson, & Colin, 2010).

5.2 Reasons for Problems in the Implementation of PPP Projects

5.2.1 Financing and Financial Problems

The financing ratio of some projects is very low. In terms of capital, central enterprises have the highest debt ratio, while private enterprises generally have insufficient financial strength or lack the willingness to invest capital. Eventually, it leads “private enterprises have no money to invest, and central enterprises can’t”. In terms of credit funds, the funds were loose in 2015-2016, and the financing problem was easier to implement. After 2017, the government couldn’t take credit enhancement measures for projects, and the projects themselves lacked guarantee conditions. Financial institutions usually tended to lend to enterprises, while financing loans for projects were more cautious. For the stock projects that were put into storage from 2014 to 2016 and needed follow-up financing, financing became more difficult because the early demonstration was not standardized and rigorous, and the risk assessment was not clear enough. In addition, the emergence of individual failed projects also caused financial institutions to lose their trust in the projects. At the same time, due to the contradiction between the long-term cooperation period and the relatively short-term loan period, the subsequent financing after the loan expired became a potential hidden danger.

The poor financial situation of the project company are also major problems faced by PPP projects, mainly including: construction costs and operating costs are generally over budget, and even the actual

construction investment of individual projects has doubled over budget or preliminary design estimates. Also, the financial benefit of the project is poor, especially for the feasibility gap subsidy project and some user-paid projects, which means the third-party charges are difficult to implement, or there is a big gap between the price and income of the previous calculation and the actual implementation.

5.2.2 The Local Government Lacks Substantive Performance Ability

The lack of substantive performance ability of local government means that the project implementation department does not have the organizational guarantee, financial guarantee and ability to perform and manage the whole life cycle of the project. The concept of PPP requires that the project implementation department, as the Party A of PPP contract, can perform the main responsibility of the contract on behalf of the local government, to supervise the project management and operation. And they need to have the knowledge, skills and experience of equal cooperation, risk sharing and performance management in the whole life cycle according to law and contract. However, in practice, most project implementation departments do not have relevant ability and experience, and fail to implement effective process supervision, cost control and financial supervision.

From the perspective of local government's financial support ability, as some projects enter the operation period and the government payment stage, they are facing great repayment pressure in areas with poor financial situation. It means that Third-party charges for many projects cannot be implemented, and cash flow is insufficient in later operation. Because the agreement on the calculation method of government payment in the PPP implementation contract is not clear and reasonable, the financial pressure and responsibility are transferred to the local government. However, at present, many municipal and county governments are short of funds for daily operation, which makes it difficult to meet the performance requirements of PPP projects.

5.2.3 Social Capital Has the Problem of Short-Term Behavior and Insufficient Ability

First, social capital lacks long-term cooperation willingness. The concept of PPP requires long-term, stable and full integration of project design, investment and financing, construction, operation and maintenance in the whole life cycle of the project, so as to improve service quality and operational efficiency or reduce project cost. However, in order to avoid the uncertainty and liquidity risk caused by the long implementation period of the project, the social capital generally lacks the willingness to cooperate for a long time, and even some social capitals treat PPP projects as BT projects in disguise.

Secondly, social capital lacks the ability to fulfill the contract. Most PPP projects are made by state-owned enterprises as social capital, but state-owned enterprises lack full-cycle capital management ability and operation management ability and experience. In addition to the above problems, private enterprises also face the problems of difficult and expensive financing.

5.3 The Application of PPP Project Performance Evaluation Results

Generally speaking, the performance evaluation of PPP projects has a certain regulatory effect on PPP projects, but the effect is limited. The main reason is that if the preliminary work is not in place, it is difficult to achieve substantive results only by the late performance evaluation.

If the performance evaluation results show that there is a violation of the project implementation contract or relevant policies and regulations, relevant departments will urge all parties involved in the project implementation to make rectification, generally based on a starting point which promotes the smooth implementation of the project. The specific method is to match the time nodes of the project with the relevant policy time nodes, then sort out the exposed and potential risks, form a risk analysis report, submit it to the government departments such as finance, The National Development and Reform Commission (The NDRC) and the Standing Committee of the National People's Congress for resolution, and consider formulating and signing supplementary agreements.

The government is more cautious about clearing and withdrawing PPP projects. The reason is that once the PPP project withdraws, the government needs to take over the unfinished project and make compensation for the early investment of social capital, which will bring great pressure to the current finance. At the same time, the failure of PPP project will have a great impact on the interests and reputation of all relevant subjects, and bring extremely negative social effects.

Of course, if there is a real need to withdraw the treasury, the government will also perform the relevant procedures for withdrawing the treasury, and most of them ask the government to persuade the social capital to withdraw. In 2018, the Ministry of Finance transferred 30 projects, including Baotou three-dimensional transportation hub and comprehensive tourism highway, from the list of demonstration projects, and withdrew from the national PPP comprehensive information platform project library. The specific process is to first understand the implementation plan, contract and other written documents, and then coordinate the interests and losses of the government and the social capital. In order to maintain credit and ensure the normal operation of the business environment, the local government, as the main responsible party, needs to compensate the social capital party. If the social capital party defaults, the follow-up treatment is relatively simple according to the contract. In other cases, it needs to go through more complicated negotiations, for example, the government formulates a detailed plan including early withdrawal clauses, and both parties negotiate within the framework of the plan, and then use the early withdrawal clauses to terminate the project ahead of time.

5.4 The Future Development Trend of PPP Projects

Two experts are optimistic about the future development of PPP projects, while one expert is cautiously optimistic. At present, PPP projects have entered the stage of depression and reflection from the boom, and the investment subjects represented by private enterprises are in trouble. In the past few years, some "seemingly landed" projects have generally "failed". Therefore, it is necessary to sum up experience and lessons before so that the PPP mode can develop stably and standardly.

When the construction and operation of PPP projects reach a certain stage, the demand for equity transfer by social capital parties gradually appears. Equity transfer of PPP projects is an important channel for social capital to revitalize existing assets, finance projects, introduce investors and enhance the value of PPP projects. It is necessary to establish an exit mechanism, vigorously develop the secondary market of PPP project financing, and adopt REITs and other modes to attract long-term

funds seeking low cost and stable income to join and replace the initial capital investment, which is a preferable project financing arrangement to ensure the success of PPP projects with a long period.

6. PPP Project Performance Management Case

This chapter takes the PPP project of domestic sewage treatment in a county as an example to illustrate the current situation of performance management of PPP projects in China.

6.1 The Case Background

In 2020, the financial department commissioned a third-party intermediary agency to conduct performance evaluation on the implementation of PPP project for domestic sewage treatment in a county. The purpose of the evaluation is to evaluate the implementation of the contract, analyze the existing problems and reasons, and put forward opinions and suggestions to improve and strengthen the project management, so as to strengthen and standardize the standardized implementation of PPP projects, and provide reference for reasonably determining the budget arrangement of fiscal expenditure responsibility in the whole life cycle.

The overall performance goal of the PPP project for domestic sewage treatment is to accelerate the construction of rural sewage demonstration counties, effectively improve the urban and rural living environment in the county, and ensure the effective treatment of domestic sewage in the county. Specifically, the PPP project is constructed and operated in the mode of Design-Building-Financing-Operation (DBFO), which is a feasibility gap subsidy project. The cooperation period of the project is 30 years, and it was established in 2016 and put into operation in 2018. The project construction includes improving the supporting pipe network in county towns, building 10 new sewage treatment facilities in towns and 500 new rural sewage treatment facilities.

6.2 The Performance Evaluation Work Programme and Index System of PPP Project for Domestic Sewage Treatment in This County

6.2.1 Work Programme

The performance evaluation is based on written material verification, interview, discussion, questionnaire survey and spot check, and comprehensively evaluates the investment, process, output and benefit of funds by means of cost-benefit analysis, comparative method, sampling survey, expert appraisal and satisfaction survey. The results of performance evaluation are set to five grades, which are excellent (≥ 90), good ($80 \leq X < 90$), medium ($70 \leq X < 80$), low ($60 \leq X < 70$) and poor (< 60).

6.2.2 Index System

The setting of the performance evaluation index system of this project fully takes into account the Operational Guidelines for Performance Management of Government and Public-Private Partnership (PPP) Projects and combines with the index system of general financial expenditure projects. According to the performance appraisal requirements in the PPP project implementation contract, the evaluation index system is divided into 4 first-level indicators, 12 second-level indicators and 33 third-level indicators.

6.3 Analysis of the Overall Conclusion and Value-For-Money Index of PPP Project Performance Evaluation in This County

According to the above-mentioned evaluation index system, the performance level of the PPP project is finally evaluated as “excellent” through the evaluation processes of preliminary preparation, material review and analysis, on-site verification and evaluation, and comprehensive analysis and evaluation. Generally speaking, the PPP project of domestic sewage treatment in this county has been implemented for three years, and the domestic sewage treatment pipe network in the county has basically formed, the demonstration effect has gradually appeared, and the performance appraisal mechanism has been basically established, which has initially produced environmental benefits and achieved certain results. However, there are some problems worthy of attention in aspects of early investment, implementation process, project output and benefit. Among them, the scores of accounting standardization, pay by performance, cost control, completion acceptance, project operation, project maintenance and value for money are poor and need to be further improved.

7. Summary

Through questionnaire survey and expert interview, this research makes a comprehensive and in-depth analysis of the performance and existing problems of PPP project implementation in China. In order to promote the standardized management of PPP project life cycle, the following conclusions and suggestions are put forward.

7.1 Standardize the Implementation Process of New Projects

In the process of project identification, it is necessary to screen the newly-added projects that are standardized and feasible in the early stage of demonstration, strictly follow the basic requirements and concepts of PPP project procurement, finish the basic work well, and solidly promote the implementation. In the process of project procurement, it is advisable to solicit social capital openly adhered to the principle of “openness, fairness, impartiality, honesty and credit”, implement project procurement in a competitive way, and do not streamline procedures casually. Also, objective risk assessment and disclosure are conducted to facilitate project implementation and risk control by stakeholders. What’s more, optimize macro-policy environment to provide clear and stable policy guidance for project implementers. Finally, strengthen the responsibility of third-party consulting institutions, which means providing professional consulting services including high-quality PPP value-for-money evaluation and financial affordability demonstration, performance evaluation, financing consultants, project management, etc.

7.2 Strengthening the Subjects’ Main Responsibilities for the Implementation of Each Project

It is significant to clarify and strengthen the supervision functions of the relevant departments of PPP projects. The NDRC, the financial department and the housing and construction department should perform their respective duties. On the basis of strictly performing their original supervision functions,

they set up a special coordination agency for PPP projects to strengthen supervision and coordination in the following aspects:

First, we should improve the government's performance ability. It illustrates that continue to vigorously promote the implementation of local projects with sufficient financial resources, improve the government's acceptance and tolerance of social capital, and improve the project supervision and PPP professional ability of project implementing agencies.

Secondly, we should improve the performance ability of social capital. It is necessary to strengthen the awareness of long-term cooperation, speed up capacity building and experience accumulation, and comprehensively strengthen the level of project operation and management.

Third, it is also necessary to give full play to the functions of the deliberative and coordinating body, and establish a flexible, accountable, incentive and compatible cooperation mechanism between the government and social funds.

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Notes

Note 1. Data source: National PPP Project Integrated Information Platform Management Library of Ministry of Finance.

Note 2. Data source: National PPP Integrated Information Platform Management Library Project July 2020.

Note 3. Data source: Mingshu data.